

Interaction between the Sun and human excitability

As mentioned in previous commentaries, solar flares have not only been associated with global weather patterns, but also human social activity.



A.L. Tchijevsky
(1897-1964)

During World War I, A. L. Tchijevsky, a Russian professor of Astronomy and Biological Physics, noticed that particularly severe battles followed solar flares during the sunspot peak period of 1916-17. Intrigued by the connection of human behavior to solar physics, Tchijevsky constructed an "*Index of Mass Human Excitability*". He compiled the histories of 72 countries from 500 BC to 1922 AD to provide a database to articulate his correlations. After rating the most significant events, Tchijevsky found that fully 80% of the most significant human events occurred during the 5 years or so of maximum sunspot activity.

The solar connection to terrestrial events has been studied by scientists ever since then, but most of the focus has been on the sun itself and on the impact of the solar cycle on the climate, weather, agriculture, commodity markets and other non-human phenomenon.

When the data is examined, it appears that when solar-geomagnetic activity is changing most rapidly and is on the ascent or on the descent of a solar cycle, when solar spots are rapidly increasing or diminishing respectively, it has the greatest potential to affect human moods, behavior patterns, creativity and historical trends.

Throughout history, cultures such as Egyptian, Hopi, Ancient Indian, Mayan, Aztec and Chinese, believed that their collective behavior could be influenced by the sun. Seers such as the famous psychic Edgar Cayce, claimed *that humans meditating together could influence solar activity and that such meditations can help to establish a more peaceful future and reduce individual and collective stress*. More and more groups are continuously forming with this intention. They are staunch believers that prayer, meditations and collective intentions, over time, can help upgrade consciousness and facilitate positive outcomes for the planetary whole. This is especially relevant during times of increased "human excitability," and hence increased creativity and opportunity available from the energy influxes which occur during the increase of solar activity.

Evidence for this is provided from a historical study conducted by Suitbert Ertel ("Bursts of creativity correlate with solar activity"-1997) who examined the association between solar activity and oscillations in human creativity. Using time series analysis he examined the periods of flourishing and years of increased creativity in science and the arts (e.g. painting, poetry and fiction). ***The results clearly show that during increased solar activity, human creative activity also peaks.*** Tchijevsky contributes this observation to the fact that the influence on the human nervous system is greatest when the amount of emitted energy by the sun and radiation of the earth are greatest.

We are at the beginning of the next Solar Cycle 24, which will increase over the next four to six years. There are always pessimistic and fear-based projections related to any new energetic cycles that have an interactive influence with the planet. However, the increasing light and coherence on the planet facilitates new choices and the power to change our responses to energy influxes. That's what the global consciousness shift is about: a chance to elect heart-based choices, then take charge and do things differently and respond with more consciousness, respect, love

and compassion. It's time to end the tendency to create and repeat the same old stress-producing "play-outs" each time there is an energy influx on the planet—such as solar activity and other energetic influences—that could bring benefits and creative opportunities to help humanity spiral upward towards the next dimension of active intelligence and heart-based living.

More and more people are realizing that solar and universal energetic influxes are part of a natural cycle—they are not "out to get us". Their effects depend on how we choose to respond to them. These influxes can be a great add-on to humanity. Yet people have to take responsibility for their own energy and elect to use this creative energy influx to create deeper connections and more caring interactions with each other and Mother Earth. The GCI's intention is to help provide self-transformational tools and technologies that help people align with their higher potentials for empowerment, in order to facilitate positive global change during the influx of the next solar cycle.

The GCI hypothesizes that:

- 1. All living things are interconnected and that we communicate with each other via our biological and electromagnetic fields.***
- 2. Not only are humans affected by such energetic fields, but conversely the Earth's energetic systems are also influenced by collective human emotions and consciousness. Much of the planetary field environment is made up of the collective consciousness of the inhabitants.***
- 3. Large numbers of people intentionally creating heart-coherent states of care, love, compassion and appreciation will generate a coherent standing wave that can help offset the current planetary-wide wave of stress, discord and incoherence.***

A major factor in the global consciousness shift is enough people realizing the need to become more self-responsible for their own energy, thoughts, feelings and actions. It is each person's responsibility to establish balance within oneself and with the Earth. Every action counts, and by "taking charge" and increasing our coherence baseline, this shift and consciousness upgrade will be reflected in the global field environment as well. This in turn will create a mutually beneficial feedback loop between human beings and the Earth's energetic systems.

Though not fully proven yet, we at the GCI research center feel that using our heart's intelligence to balance and manage our mental and emotional systems, along with meditations to increase our coherence, will raise our personal frequency pitch and energetically align us with the creative opportunities and benefits that can come with this next cycle of solar activity. More people are becoming aware that they have a choice in how they interact with new energy influxes—be they spiritual, astrological, solar, lunar, environmental or social.

The Global Coherence Initiative is only one of the many emerging groups working to facilitate the planetary shift in these adventuresome and sometimes challenging times. No facilitation is "more important" than another. With a noncompetitive spirit and genuine care, all groups and individuals add a helpful piece to the grid and are energetically connected to each other at the heart level to serve the greater whole. We at the GCI honor and appreciate the love and care these groups and individual light workers from all over the world have put into this cause.

With gratitude and appreciation,

Annette Deyhle, Ph.D. and GCI Research Team

**Influence of Geomagnetism and Schumann
Resonances on Human Health and Behavior**

July 15, 2009

In this commentary I would like to focus on this question: **Is there a connection between solar activity, geomagnetic storms and the Schumann resonances and human health and behavior?**

In the last commentary, I discussed the **Schumann resonances**. Like a tuning fork, the earth has natural sound frequencies and these are called Schumann resonances. There are about 1000 lightning storms at any given moment worldwide, which excite the cavity. These resonances form in the conductive ionosphere which acts as a wave-guide. The limited dimensions of the earth cause this wave-guide to act as a resonant cavity for electromagnetic (EM) waves in what are extremely low frequencies bands (see figure below).



The lowest-frequency mode of the Schumann resonances is approximately 7.83 hertz (Hz), with a daily variation of about ± 0.5 Hz. The other frequencies are 14, 20, 26, 33, 39 and 45 Hz.

At the time physicist W.O. Schumann published the results of his research about these resonances in the journal *Technische Physik*, a Dr. Ankermüller, a physician, immediately made the connection between the Schumann resonances and the alpha rhythm of brain waves. He found the thought of the earth having the same natural resonance as the brain very exciting and contacted Professor Schumann, who in turn asked a doctoral candidate to look into this phenomenon. This doctoral candidate was Herbert König, who became Schumann's successor at Munich University. König demonstrated a correlation between Schumann resonances and brain rhythms. He compared human EEG recordings with the natural electromagnetic fields of the environment (1979) and found that the first five Schumann resonances, 0-35 Hz, to be within the same frequency range as the brain waves in a human EEG and the 7.8 Hz signal to be very close to the brain's alpha rhythm frequency.

The first five Schumann resonances overlap with the brain frequency bands. Note: Brain waves are grouped according to their frequencies and are labeled with Greek letters. Their most common frequencies include alpha, beta, delta and theta.

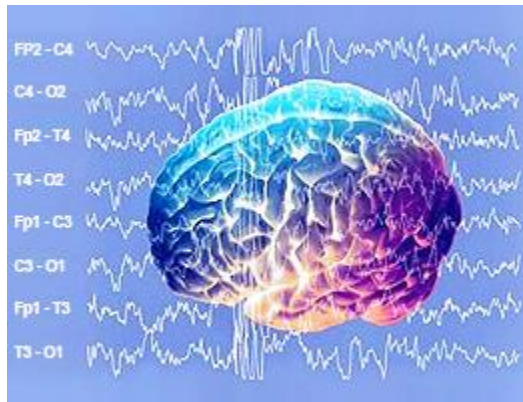
State	Frequency Range	State of Mind
Delta	0.5Hz -	This occurs in a deep dreamless sleep or unconsciousness.

4Hz

Theta	4Hz - 7Hz	This is associated with drowsiness. It also occurs at first stage of sleep and during deep meditation, when we are awake but open to mental imagery. It has been associated with creativity, intuition daydreaming and fantasizing. Believed to reflect activity from the limbic system and increased activity is observed in anxiety, behavioral activation and inhibition.
Alpha	8Hz - 12Hz	This is the major rhythm seen in a normal, relaxed adult. It is present during most of life. It is considered a common state during alertness but not actively processing information. Alpha has been linked to creativity (creative people show alpha when listening and coming to a solution) and mental work. Alpha activity is also associated with overall mental and body/mind coordination, calmness, alertness and learning.
Beta	12Hz - 30Hz	Beta reflects highly active processing. Occurs during normal waking consciousness and outward attention. Slow beta: 12-17 is normal information processing and mental activity; Fast beta: 17-30 is heightened alertness and fight or flight, or anxiety.
Gamma	30Hz - 100Hz	This is associated with waking states and can occur when we are simultaneously processing information in both brain hemispheres. Whales and dolphins also operate in these frequencies.

Since this first discovery, more scientific research has posited that Schumann resonances are very important electromagnetic standing waves, acting as background frequencies and influencing biological oscillators within the mammalian brain.

As long as the properties of Earth's electromagnetic cavity remain about the same, these frequencies remain the same. Some of the changes that occur in the Schumann resonances are caused by the solar sunspot cycle as Earth's ionosphere changes in response to changing solar wind associated with the 11-year cycle of solar activity. As the mean intensity of the Schumann resonances increases or decreases because of day/night differences, changes in solar activity, global weather, etc., our brains and nervous systems respond to the changes.



Resonance may be defined as the frequency at which an object most naturally wants to vibrate. For example: In coherent systems, one object may set another object into motion if it shares the same resonant frequency. If, for example, you strike a tuning fork of 100 cycles per second and bring it near another tuning fork of that same frequency, the second tuning fork will be set in motion. Even though it has not been struck, the second fork will begin to vibrate and radiate a sound merely by being in the same field as the vibrating tuning fork.

Similar to the tuning-fork example, *evidence shows it is possible for the brain to detect, tune into and respond to a Schumann resonance signal.*

The question arises: How are we able to tune into the Schumann resonances?

The answer is that our brain possesses *Zeitgeber*, a German word that translates literally to *time givers* and refers to external agents or events that provide signals – in this case, the Schumann resonances. These external signals help the human biological system to become synchronized with the daily rhythmic cycles of the earth.

Research within the last decade shows that significant alteration in solar and geomagnetic activity caused by such things as geomagnetic storms can precipitate significant changes in the intensity and stability of a **Schumann resonance** signal. This can take a **Schumann resonance** signal outside of its normal range and induce alterations in brain and heart synchronization and changes in the brain's melatonin level.

Some ill effects associated with changes in solar geomagnetic activity:

- Altered blood pressure.
- Reproductive, immune system, cardiac and neurological problems.
- Mental disorders, depression and suicide.
- Increased hospital admissions, accidents and sudden death, as well as countless other stress-related conditions.



A number of human reaction-time experiments have been conducted relative to external events and Schumann resonances. In 1974, for example, König showed that human reaction times were significantly correlated with the intensity of the 8-10 Hz Schumann signal. Ten Hz have been shown to speed up reaction times, while 3-Hz signals from local thunderstorms have been shown to significantly lower reaction times. This phenomenon can be demonstrated by changes in EEG patterns and calcium ion uptake in the brain.

The effects of manmade electromagnetic fields on human health

The electromagnetic fields generated by power supply systems, telecommunications, appliances, computers and other technology produced by humans are extremely powerful and in some cases have been associated with increased incidence of cancer, heart disease, depression and other diseases. Exposure to strong electromagnetic fields in residential areas and in certain occupations has been documented as significantly increasing the incidence or risk of the listed diseases. Certain groups of people such as the elderly, children, women who are pregnant and the weak have been found to be more sensitive or susceptible to adverse effects from these fields than the rest of the population. (As is often the case with research, there are opposing opinions on the existence or extent of such adverse effects.)

Thus we see that the Schumann resonances, geomagnetic and solar activity influence human health and behavior. It is exciting to see that the study of Schumann resonances points towards the interconnectedness of all (us, our planet earth, the sun, and probably many other planetary factors we are not aware of yet).

Much more detailed research has been carried out, but it is beyond the scope of this commentary to go into it.

So, in summary, researchers have found evidence indicating that human health and behavior appear to be affected by changes in Schumann resonances. Also, many scientists believe these resonances may be important in human biological cycles.

Possible future considerations for scientists with respect to the Schumann resonances include learning why some people are adversely affected by changes in them, why most people are not and what can be done to help those who are.

In addition to exploring whether mood and health are affected by Schumann resonances, researchers also have studied whether there is a link between historical events such as wars and social unrest with the solar cycle and resulting changes in ionospheric activity. I will write more on this subject in an upcoming commentary.

Allow me to mention two items not directly related to today's topic:

- Because increased geomagnetic activity can cause an imbalance in heart-brain synchronization, we want to encourage you to practice coherence regularly to help you maintain that balance.
- You probably have received e-mails about the GCI's current Interconnectedness Study, which is aimed at helping us gain a more holistic picture of human health and behavior and how these are influenced by various planetary factors. We will keep you informed about the results. A likely second Interconnectedness Study, in case you missed out on this one, should take place in about six months.

Remember what Albert Einstein said: *"Everything in life is vibration."*

Until next time, best wishes for good vibrations in your life,

Annette Deyhle, Ph.D. and GCI Research Team

Earth's Atmosphere, Schumann Resonance and the Ionosphere

May 11, 2009

First and foremost I want to thank all of you for providing so much insightful feedback to my last commentary. Have you heard, our global coherence community now has over 13,000 members?

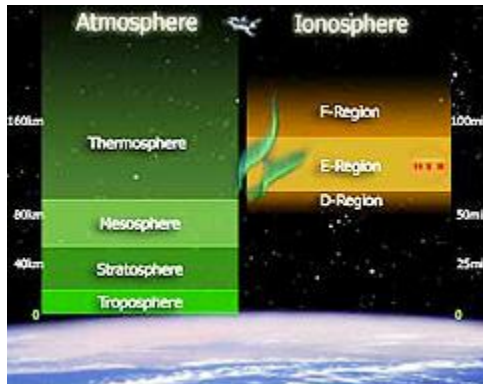
Two major events have happened since my last update: A 5.8-magnitude earthquake in Italy claimed the lives of nearly 300 people and left 29,000 homeless; and the swine flu outbreak, which had reached 2,500 confirmed cases worldwide as of May 8 and resulted in 44 deaths – 42 in Mexico and two in the U.S. – threatened for a time to become a pandemic, creating a great deal of fear and anxiety.

Many questions have been asked and I will address one of the most frequent: What happened during Obama's inauguration? In the following, I explain a case study of data from our magnetometer, Maggie, as well as data provided by researcher Roger Nelson from the Global Consciousness Project random number generator (RNG) network. The information from Maggie illustrates the kind of data we are starting to see with the ultrasensitive magnetometer and what it may be telling us. We are on the frontier where new science is created, and we are glad you are on board with us.

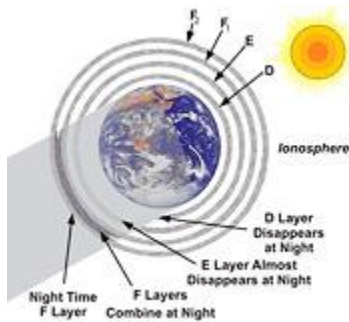
For those interested in the scientific background, I will continue to explain some more basics behind GCI and the ionosphere and magnetometer data. Feel free to scroll down to the data related to [Obama's inauguration](#) if you would like to skip this science.

Earth's Atmosphere, Schumann Resonance and the Ionosphere

As mentioned in the previous commentary, the Earth is surrounded by a blanket of air reaching over 350 miles into space. The atmosphere is essential for life on the planet. It provides the air we breathe, water is recycled and the ozone layer protects us from the harmful effects of ultraviolet light, which can cause skin cancer. The atmosphere has four layers, the troposphere (about 0-10 miles), stratosphere (about 10-30 miles), mesosphere (about 30-50 miles) and thermosphere about 50-375 miles, see figure from NASA below).



Within the thermosphere is a band called the **ionosphere** that begins about 50 miles out from the Earth's surface and extends out to about 180 miles. It consists of charged particles. This highly dynamic region is constantly exposed to the full intensity of the sun; harsh ultraviolet radiation is breaking down molecules and atoms. Highly charged ions and free electrons therefore fill the ionospheric layers. A solar storm can pump charged particles into the magnetosphere and ionosphere. The ionosphere consists of three basic layers: D, E, and two F layers; during the night the D layer disappears, the E layer nearly disappears and the F layers combine (see figure from NASA below).



Scientists have found that extreme solar activity drastically compresses the magnetosphere (the protective magnetic bubble carved out by Earth's magnetic field) and modifies the composition of ions in the near-Earth space. These changes and disruptions in the ionosphere are detected by **magnetometers**.

Such increased solar activity affects the ionosphere, upper atmosphere, and Earth's weather. This is why monitoring and forecasting its impact on near-Earth space is becoming increasingly critical to safeguarding daily life on Earth.

You can watch the effect of extreme solar activity on Earth's magnetosphere by following this link: www.physorg.com/newman/gfx/news/hires/watchingsola.gif.

Schumann Resonances:

Schumann resonances (SR) are the electromagnetic frequencies of the Earth-ionosphere cavity (see figure below) and were first predicted by W.O. Schumann (1952). Electromagnetic impulses, like those from global lightening flashes (the world's thunderstorm activity) fill this cavity and excite the Schumann resonances. Resonances can be observed at around 7.8, 14, 20, 26, 33, 39 and 45 Hz (see the live data at www.glcoherence.org/monitoring-system/live-data.html).

The observation of Schumann resonances can provide valuable information about solar activity, world thunderstorm activity, properties of the upper dissipative boundary layer, the Earth-ionosphere cavity and climatic changes. It has been found in previous studies that the Schumann resonances can influence human health indicators such as blood pressure, and it is likely that they also affect cardiac and neurological disease, violence and war, some of which was

discussed in my last commentary.

Random Number Generators (RNGs) and Maggie – IHM's Magnetometer: Data and Intentionality

An RNG is an electrical device that randomly produces a sequence of numbers – either 0 or 1 – 200 times a second) which should be a random string of numbers that equal out to 100 0's and 100 1's and that results in a flat line when they are all added together. Roger Nelson started the Global Consciousness Project when he was at Princeton University and is a collaborator with the GCI (<http://noosphere.princeton.edu/>).

During events in which millions of people share emotions globally such as **Barack Obama's Inauguration**, many people seem to come into alignment, or coherence.. In this case, the random production of 0's and 1's from 65 RNGs at host sites in 41 countries went out of balance: Small, but meaningful differences from expectations can be seen in the data (for example, more 1's than 0's were produced or more 0's than 1's). This is also true for events in which the power of group focus such as during meditations has been applied intentionally, with the goal of having a positive impact on troubled areas on the planet, whether it is a war zone or an area struck by natural catastrophe. Although RNG data can detect imminent events, it does not tell us what is in store.

Obama's Inauguration:

RNG data

To help us better understand the global impact of Obama's inauguration, we will examine the RNG data from the Global Consciousness Program (see figure 1. below) and our "Maggie" data.

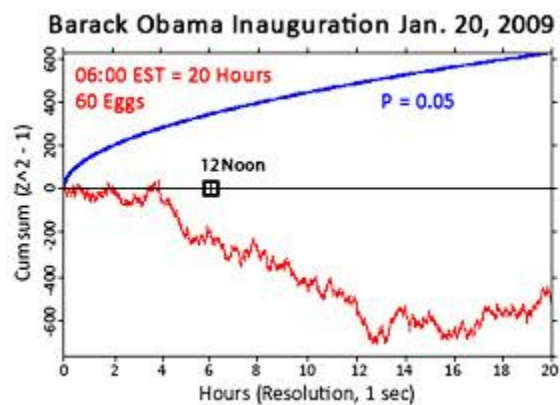


Figure 1.

Shows the network variance of the Global Consciousness Project's random number generator network before, during and after the inauguration of President Obama.

The formal event specification for the inauguration was extended both before and after the swearing-in, attempting to capture the anticipation and the celebration of the estimated 1.5 to 2 million people in Washington D.C., and hundreds of millions watching the ceremonies on TV around the world. The event was set for 6 a.m. on the 20th to 2 a.m. on the 21st, EST.

The result is graphically quite striking, with no trend for the first four hours. Then there is a very steady trend showing smaller than expected network variance for about 12 hours, and finally a change to a period of relatively large variance. For a more detailed explanation, go to the Global Consciousness Project Web site at <http://noosphere.princeton.edu/>.

Maggie Data

The following two graphs show some preliminary data from Maggie, the magnetic field detector developed by the Global Coherence Initiative research and development team to monitor the resonances occurring in the plasma waves constantly circling the Earth in the ionosphere.

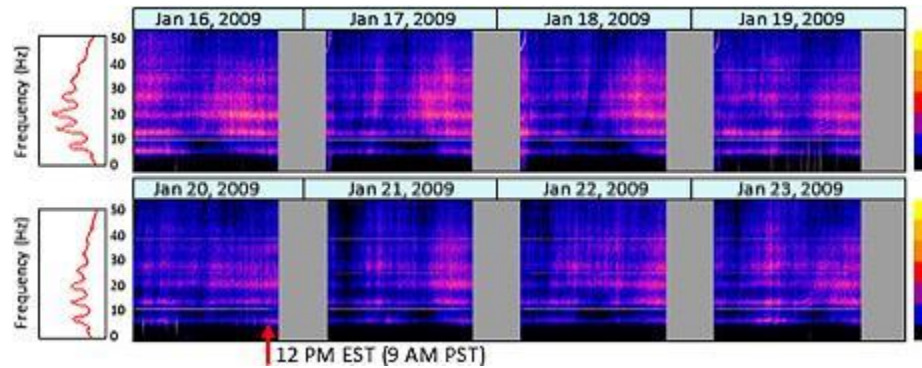


Figure 2.

This is a plot of daily spectrograms of the Schumann resonances for the four days before, day of and three days after President Obama's inauguration. The intensity levels of the resonances are substantially lower the day of and the days following the inauguration than the days preceding it.

Figure 2 is a frequency-time spectrogram of the horizontal component of the Schumann resonances. Within the spectrograms, the power of the intensity at the right side of Figure 2 of a given frequency is coded in a color scale, with yellow being the most intense. The typically daily variations in the intensity of the resonances can be seen in the figures. The time of the presidential swearing-in at 12 p.m. EST on the 20th is noted by the red arrow. At the left of Figure 2 is a vertical section through the spectrogram showing the typical resonance structure for Jan 16 on the upper row and Jan 20 on the lower row.

The resonances are shown by the red lines that appear as horizontal lines with frequencies of 7.8, 14, 20, 26, 33 and 39 hertz. The daily time periods shown in each daily plot are 10 a.m. to 4 p.m. PST. The grey boxes were added to omit the data that was contaminated on several of the days by a local noise source – a solar charger that was being eliminated.



Figure 3.

This shows the total spectral power in the frequencies between 5 and 40 hertz for the same days shown in Figure 2.

GCI researchers note that an interesting observation of this data is the pronounced change in the activity level of the resonances. **As shown in both figures, there is a pronounced drop in intensity on the day of the inauguration that persisted during the three days following it.** The GCI research team has been exploring changes in space weather and other indicators of ionospheric activity such as ion density that could explain the changes in resonance intensity. So far, the changes do not appear to correlate with other indicators that are known to affect ionospheric activity. However, it is possible that we are seeing an effect of human consciousness acting on global weather patterns.

Similar observations were made during another event, World Sound Day, on Feb. 14 of this year, but we are still exploring the data. Data comparable to Obama's inauguration for RNGs and Maggie were obtained. This was a day when people around the planet took five minutes to send a sonic Valentine to the Earth with the heart sound "AH," which was filled with the intention of peace and love.

Obviously, so far we can only speculate about the meaning of the data, and we are excited about continuing this interesting journey of helping to increase global coherence. *Might the alignment of many millions of people in most countries of the world cause a quiet period in the magnetometer data? Does the data correspond with uniting the emotions of many, allowing for more global peace and harmony? Because solar storms increase the intensity in the level of resonance, which in turn causes health challenges, violence etc., the data could be a first indicator that we are taking the right steps with our innovative research in monitoring the ionosphere.*

So far we have taken an exploratory look at the possibility of global events being the catalyst for the kind of coherence that we think of as a global consciousness. A word of caution, however: Our research team knows that to scientifically prove our theory, the real effect only can be identified by repeatedly monitoring events that have similar impact.

In closing our commentary today, and in appreciation of Earth,

"The mountains, rivers, earth, grasses, trees, and forests are always emanating a subtle, precious light, day and night, always emanating a subtle, precious sound, demonstrating and expounding to all people the unsurpassed ultimate truth." –Yuan-Sou



Best wishes for much coherence, health and harmony to you all,

Annette Deyhle, Ph.D. and a member of the GCI research team